

groups of small spines on each side, and it terminates in an aster (Text-fig. 11) of six tubercles, each bearing a long slender spine.

As only females were reared no comparison of the male pupa can be given.

The specimens used in the preparation of this paper, e.g., the adult flies with pupal exuviae, and slide mount of larval exuvia, together with larva and pupa in spirit, slide preparations of larvae, and collected adults, have been deposited in the Macleay Museum at the University of Sydney.

#### CONCLUSION.

The larva and pupa described run down to Tabanidae in Keys to Families given by Malloch (1917). Insufficient material exists as yet for a key of the immature stages of Australian Tabanidae to be attempted. Fuller (1936) suggested that a distinguishing character of Pangoninae pupae might be the reduced aster on the terminal segment, of two projections only, as this occurs in the Australian *S. auriflua* Don. and the American *G. chrysocoma* Osten-Sacken; but the aster of *Ectenopsis* with six projections shows that, though the two-pronged aster may be a valuable part of a key, it is not a character of the whole group. Characters that may be of use in larval keys, generic or specific, are the small processes on the first antennal segment, and the processes on the spiracular area of the posterior spiracle, and for that reason they have been described and figured in detail.

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REVISION OF AUSTRALIAN AND NEW ZEALAND SPECIES OF  
THELEPORACEAE AND HYDNACEAE IN THE HERBARIUM  
OF THE ROYAL BOTANIC GARDENS, KEW.

By G. H. CUNNINGHAM, Plant Diseases Division, Department of Scientific  
and Industrial Research, Auckland, New Zealand.

(Communicated by Professor N. A. Burges.)

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Through the courtesy of the Director of the Royal Botanic Gardens, Kew, England, I was enabled to examine in 1951 all collections in the herbarium of species of the families Theleporaceae, Hydnaceae, Clavariaceae and Heterobasidiomycetes. This paper provides a complete list of collections of the Theleporaceae and Hydnaceae from Australia, Tasmania, New Zealand and New Guinea deposited therein, gives correct names and synonyms, and indicates under which species they have been filed when incorrectly identified. A subsequent list covering the Clavariaceae and Heterobasidiomycetes will be prepared at a later date.

I am grateful to Sir Edward Salisbury, F.R.S., Director of the Royal Botanic Gardens, and Dr. R. W. G. Dennis, Deputy Keeper of the herbarium, for permission to examine collections in the herbarium and for facilities kindly provided; and to the Trustees of the Nuffield Foundation for their generous grant to defray travelling expenses.

Valid species are set in small capitals, synonyms in italics, incidental species and misdeterminations in upper and lower case, individual collections in inverted commas. I have added abbreviations of Australian States to locality references since these were seldom inserted on the herbarium sheets at Kew. Literature references in all cases were checked in the library at Kew, so are accurate both for valid species and synonyms.

acerinus, *Aleurodiscus* (Pers.) H. & L. Under this cover at Kew are two collections. "N.Z., Wellington, Travers, No. 376" so named by Cooke is of *Corticium scutellare*; "Tasmania", placed by Berkeley under *Stereum acerinum*, is a *Sebacina*, of the Heterobasidiomycetes.

1. AFFINE, *STEREUM* Lev., *Ann. Sci. Nat.*, Ser. III, 2, 1844: 210.

*mellisii*, *Stereum* Berk. ex Cke., *Grev.*, 13, 1884: 3, *nomen nudum*.

Two collections from New Guinea are at Kew. "New Guinea, Strickland River, Everell's Expedition" was filed by Cooke under *Stereum mellisii*. Bresadola had noted on the sheet that it was not this species, but to him was unknown. A second, "Kumusi River, New Guinea, Fitzgerald, 1895" Cooke placed under *Stereum pergamenum*.

2. ALBIDUS, *ALEURODISCUS* Mass., *Grev.*, 17, 1889: 55.

The only collection under the cover at Kew is the type, ex "Brisbane, Q., No. 620". *alutacea*, *Odontia* (Fr.) Bourd. & Galz. Collections from the region filed under this cover by Cooke are "Near Melbourne, Vic., June 1884, F. Reader, No. 5", "N.Z., Colenso, b.6" and "Tasmania, W. Archer", the last being the type of *Hydnum filicicolum*. All are specimens of *Odontia arguta*.

*amaenum*, *Stereum* (Lev.) Mass. = *Stereum percome*.

3. ANOMALA, *SOLENIA* (Pers.) Fcl., *Symb. Myc.*, 1, 1871: 290.

*anomala*, *Peziza* Pers., *Myc. Eur.*, 1, 1822: 270.

Four collections from the region agree with authentic specimens, namely "Tasmania, Archer", "Tasmania, W. Archer", "Australia, 1882" and "N.Z., Colenso, b. 582".

## 4. AOTEAROA, STEREUM G. H. Cunn.

On the type sheet of *Stereum contrarium* is a collection ex "Puhi Puhi, N.Z., T. Kirk, No. 221". Bresadola had written on the sheet—"An *St. medicum* Currey sed vix *Stereum*; ?*Irpec.* Non scytali affine". It is of an endemic species not uncommon in New Zealand which will be described in a forthcoming paper.

arachnoideum, *Corticium* Berk. Three collections from the region are filed under this cover at Kew. "Australia, S.53" so named by Berkeley, is of *C. sphaerosporum*; "Tasmania, W. Archer Esq." and "Tasmania", the latter consisting of three collections, are too fragmentary to name, but are not of this species.

*archeri*, *Corticium* Berk. = *Odontia archeri*.

*archeri* (*Veluticeps*), *Hymenochaete* (Berk.) Cke. = *Stereum illudens*.

5. ARCHERI, ODONTIA (Berk.) Wakef., *Trans. Proc. Roy. Soc. S. Aust.*, 1930: 157.

*archeri*, *Corticium* Berk., *Fl. Tas.*, 2, 1860: 260.

*chrysocreas*, *Corticium* Berk. & Curt., *Grev.*, 1, 1873: 178.

*crociocreas*, *Corticium* Mass., *Jour. Linn. Soc.*, 27, 1890: 151.

The species resembles *Grandinia australis* in that in both the context hyphae are coated with brown mucilaginous granules. Collections from the region at Kew are the type of *Corticium archeri* ex "Tasmania", "Sydney, N.S.W., J. B. Cleland, May 1919", "Mt. Lofty, S. Aus., J. B. Cleland, May and June 1928" and "Brown's River, Tasmania, J.B.C., Jan. 1928".

*archeri*, *Stereum* Berk. = *Stereum illudens*.

6. ARCHERI, THELEPHORA Berk., *Fl. Tas.*, 2, 1860: 258.

The type, labelled "Tasmania", was referred by Bresadola to *Lachnocladium*; but Corner (1950, p. 723) correctly showed it to be a *Thelephora*. A second collection on the type sheet, ex "Delegate Hill, Vic., E. Reader" may be the same, but this could not be ascertained since spores were not found.

7. ARGUTA, ODONTIA (Fr.) Quel., *Enchiridion*, 1886: 196.

*argutum*, *Hydnum* Fr., *Syst. Myc.*, 1, 1821: 424.

*filicolum*, *Hydnum* Berk., *Fl. Tas.*, 2, 1860: 256.

Three Australian collections at Kew correctly named by Miss Wakefield are "Pillagra scrub, near Queensland Border in N.S.W., J. B. Cleland, 1918, W", "National Park, Tasmania, J.B.C., Jan. 1928" and "Brown's River, Tasmania, J. B. Cleland, Jan. 1928". Other collections of the species filed under *O. alutacea* are "Near Melbourne, Vic., June 1884, F. Reader, No. 5", "N.Z., Colenso, b.6" and "Tasmania, W. Archer". The last is the type of *Hydnum filicolum*.

8. ARIDA, CONIOPHORA (Fr.) Karst., *Finska Vet.-Soc. Bidrag. Natur och Folk*, 37, 1882: 161.

*arida*, *Thelephora* Fr., *Elench.*, 1, 1828: 197.

*luteocincta*, *Thelephora* Berk., *Jour. Linn. Soc.*, 13, 1873: 168.

*luteocinctum* (*Coniophora*), *Corticium* (Berk.) Cke., *Grev.*, 8, 1880: 89.

*luteocincta*, *Coniophora* (Berk.) Sacc., *Syll. Fung.*, 6, 1888: 648.

*cookei*, *Coniophora* Mass., *Jour. Linn. Soc.*, 25, 1889: 136.

Collections at Kew from the region are ex "Bunyip, Vic., No. 376" placed under *Coniophorella olivacea*; "b.507" filed by Cooke under *Corticium sulfureum*; "Wangaretta, Vic.", the type of *Coniophora luteocincta*, which consists of several fragments attached to rotten wood, not growing on the ground as was recorded by Berkeley.

9. ARTOCREAS, HYDNUM Berk. & Curt., ex Cke., *Grev.*, 20, 1891: 1.

New Zealand collections agree with the type ex Venezuela, No. 139.

*atrocinerea*, *Peniophora* (Kalch.) Mass. = *Duportella schomburgkii*.

*atrovirens*, *Corticium* Fr. A collection placed by Cooke under this cover, ex "Brisbane, Q., Bailey, No. 526", labelled on the sheet *Coniophora atrovirens* Berk. & Br., is of a species of *Septobasidium*.

atrum, *Stereum* (Weinm.) Cke. Three collections so referred by Cooke, ex "Brisbane, Q., Bailey", "Illawarra, N.S.W., Camara" and "Gippsland, Vic., Murray" are of *Stereum elegans*.

10. ATTENUATA, HYMENOCHAETE Lev., *Ann. Sci. Nat.*, Ser. III, 5, 1846: 152.

*attenuatum*, *Stereum* Lev., *Ann. Sci. Nat.*, Ser. III, 2, 1844: 212.

Two Australian collections under the cover are "Southport, Q., J. H. Simmonds, Sept. 1914" and "Moruya, N.S.W., W. N. Cheesman, 1914".

auberianum, *Corticium* Mont. Four collections from the region are filed under this cover at Kew. "Clarence River, N.S.W., Dr. Beckler", so named by Berkeley, consists of three specimens of a sterile *Stereum* showing receding growth; "Currey, New Zealand" is a specimen of *Peniophora incarnata*; "N.Z., Colenso, b.662, b.772" are specimens of a white multiple-layered *Peniophora*.

*australe*, *Stereum* Lloyd = *Stereum lobatum*.

*australis*, *Cladoderris* Berk., ex Cke. The only collection on the type sheet is of *Cladoderris infundibuliformis*. Berkeley referred it to *Thelephora dendritica*, Lloyd to *Cladoderris spongiosa*.

11. AUSTRALIENSIS, ALEURODISCUS Wakef., *Kew Bull. Misc. Inf.*, 1918: 208.

The type is at Kew, ex "Buderim Mt., Q., C. T. White, No. 4, Apl. 1912".

*australiensis*, *Cyphella* Cke., *Grev.*, 20, 1891: 9. The type, ex "Melbourne, Vic., Berggren, No. 378" is a specimen of an immature *Aleurodiscus*. A second collection, so named by Masee, ex "Centennial Park, N.S.W., E. Cheel, No. 21" is of *Cyphella villosa*.

12. AUSTRALIS, GRANDINIA Berk., *Fl. Tas.*, 2, 1860: 257.

*pevatum*, *Hydnum* Mass., *Kew Bull. Misc. Inf.*, 1901: 157.

Collections under the cover at Kew are the type, ex "Tasmania, Archer", "Tasmania, J. B. Cleland, 1928", "National Park, Sydney, N.S.W., W. N. Cheesman, 1914" "N.S.W., J. B. Cleland, 1928" and the type of *Hydnum pevatum* ex "Tasmania, Rodw<sup>ns</sup>, No. 340". "N.Z., Colenso, b.831" is a specimen of *Corticium scutellare*. Specimens of *Odontia archeri* filed under the cover are ex "Gippsland, Vic., May 1884" and "Naree Warree, Vic., Martin, Nos. 867, 1111".

baileyanus, *Stereum* Berk., in herb. Kew. A specimen so labelled, now unrecognizable, ex "Russell River, Q., Sayer, No. 49" is filed under *Stereum prolificans*. Cooke (1892, p. 183) recorded it as a synonym of the latter species.

13. BERGGRENI, ALEURODISCUS (Cke.) nov. comb.

*berggreni*, *Hypocrea* Cke., *Grev.*, 8, 1879: 65.

*peziculoides*, *Aleurodiscus* Wakef., *Kew Bull. Misc. Inf.*, 1931: 201.

Four collections from New Zealand are at Kew, the type of *Hypocrea berggreni* ex "N.Z., Dr. S. Berggren"; the type of *Aleurodiscus peziculoides* ex "York Bay, Wellington, E. J. Butler-G.H.C., July 1923, No. 1210"; a third labelled *Corticium polygonium* Fr. ex "U.S.A. Curtis", a faulty locality record since the species is endemic; and "N.Z., Colenso, b.252" filed by Cooke under *Stereum frustulosum*.

*beyrichii*, *Lloydella* (Fr.) Bres., *nom. ined.* Under *Stereum pannosum* Cooke placed a weathered specimen of *S. illudens* ex "N.Z., Colenso, b.906". On the sheet Bresadola had written—"=*Lloydella beyrichii* (Fr.) Bres. meo sensu. Specimen a vetusta hymenio ex acetate collapse = *S. membranaceum* P. Henn.". Included as part of the type collection of *Duportella schomburgkii* ex "Port Darwin" is a specimen of *S. illudens*. Regarding it Bresadola had noted on the type sheet—"=*Lloydella beyrichii*, meo sempi vix vel parum diversa".

14. BICOLOR, ODONTIA (A. & Sw.) Bres., *Ann. Myc.*, 1, 1903: 87.

*bicolor*, *Stereum* A. & Sw., ex Fr., *Syst. Myc.*, 1, 1821: 417.

Though the species is common in New Zealand, there are no collections from the region at Kew.

15. BICOLOR, STEREOUM (Pers.) Fr., *Epicrisis*, 1838: 549.  
*bicolor*, *Thelephora* Pers., ex Fr., *Syst. Myc.*, 1, 1821: 438.  
*coffeatum*, *Stereum* Berk. & Curt., *Grev.*, 1, 1873: 164.  
*fusca*, *Thelephora* (Schrad.) Pers., ex Quel., *Myc. Fr.*, 1888: 14.  
*pannosum*, *Stereum* Cke. & Mass., *Grev.*, 21, 1892: 38.

Three collections from the region are at Kew ex "New Guinea, Armit" and "Korumburra, Vic., Mrs. Martin, Nos. 1067, 1071". The last is the type of *S. pannosum* Cke. & Mass.

16. BOMBYCINUM CORTICIUM (Somm.) Karst., *Hedw.*, 32, 1893: 120.

One collection from Australia is at Kew, ex "Kuitpo, S. Aus., J. B. Cleland, June 1928", identified by Miss Wakefield.

*borjanum*, *Stereum* Fr. The five collections from the region filed under this cover, ex "New Guinea, W. E. Armit", "Daintree River, Q., Pentzcke", "North Queensland", "Tweed River, N.S.W., Camara, No. 84" and "Richmond River, N.S.W., Camara" are of *Stereum lobatum*, of which the type is merely a pallid form.

*butleri*, *Auricularia* Mass. = *Stereum hispidulum*.

17. CACAO. HYMENOCHAETE Berk., *Jour. Linn. Soc.*, 10, 1868: 333.

*cacao*, *Stereum* Berk., *Hook. Jour. Bot.*, 6, 1854: 169.

The only collection at Kew from Australia, ex "Cooroy, Q., C. T. White, Apl. 1911, No. 8" agrees with the type from India save that the pileus hairs are more strongly developed.

18. CAESIA. PENIOPHORA Bres., in Bourd. & Galz., *Bull. Soc. Myc. Fr.*, 28, 1912: 406.

Two collections are at Kew from New Zealand, filed under *Peniophora cinerea*, namely "New Zealand, 1866, b.268" and "Mamaku, W. N. Cheesman, 1914".

*calcareum*, *Hydnum* Cke. & Mass. = *Irpex calcareum*.

19. CANDIDA, SOLENIA Pers., *Myc. Eur.*, 1, 1822: 334.

*fasciculata*, *Solenia* Pers., *l.c.*, p. 335.

Collections at Kew ex "Brisbane, Q., Bailey, No. 735" and "N.Z., Colenso, b.14" agree with European specimens. Judging from the description, no specimens being in the herbarium, *Cyphella schneideri* appears to have been based on a Queensland collection.

20. CAPERATUM, STEREOUM (Berk. & Mont.) Mass., *Jour. Linn. Soc.*, 27, 1890: 161.

*caperata*, *Thelephora* Berk. & Mont., *Ann. Sci. Nat.*, Ser. III, 11, 1849: 241.

*lamellata*, *Thelephora* Berk. & Curt., *Am. Jour. Sci. and Arts*, Ser. II, 11, 1851: 94.

*lamellatum*, *Stereum* (Berk. & Curt.) Cke., in herb. Kew.

Collections from the region at Kew are ex "Norfolk Island, June 1855, No. 34, H.M.S. Herald", "New Caledonia, R. H. Compton", "Morton Bay, Q., F. M. Bailey, No. 12", "Clarence River, N.S.W." (labelled *Thelephora dendritica*), "Coomerong Island, Shoal-haven River, N.S.W., No. 866, F. A. Rodway", "Illawarra River, N.S.W., Kirton", "Lord Howe Island", and "Baradi, Papua, C. E. Carr, No. 13471" (the last labelled *Cladoderris infundibuliformis*). Under the cover of *Stereum lamellatum* are filed the type ex "Aru Island, Challenger Expedition", "New Guinea, Armit", "Solomon Islands, 1884, Dr. Guppy", "Dunk Island, Q., W. Cottrell Dormer, Aug. 1927" and "Toowoomba, Q., Hartmann". This last Masee treated as a variety of *Stereum caperatum*; and on the type sheet Bresadola had written—"= *Cladoderris infundibuliformis*, juvenilis, hymenio nondum tuberculoso".

21. CAPUTMEDUSAE. HYDNUM (Bull.) Fr., *Syst. Myc.*, 1, 1821: 409.

Masee so named a collection ex "Tasmania, L. Rodway, No. 234".

*carnea*, *Peniophora* (Berk. & Curt.) Cke. A specimen so labelled by Cooke, ex "Walcha, New England, N.S.W., Crawford" does not resemble the type ex Texas.

*castanea*, *Hymenochaete* Wakef. = *Duportella tristicula*.

*ceriferum*, *Stereum* Wakef. = *Stereum hispidulum*.